



# Automotive Tool Room Lead Technician

QP Code: ASC/Q4102

Version: 2.0

NSQF Level: 5

Automotive Skills Development Council || 153, Gr Floor, Okhla Industrial Area, Phase - III, Leela Building  
New Delhi - 110020

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## ASC/Q4102: Automotive Tool Room Lead Technician

### Brief Job Description

The individual is primarily involves in supervising all kinds of machining, assembling and in-line inspection activities of tool and die manufacturing process.

### Personal Attributes

The person should be patient, organised, team-oriented and have the ability to work for long hours in adverse conditions. They should be keen observers and have an eye for detail and quality. The individual must also be able to communicate effectively and meet the deadlines for test results.

### Applicable National Occupational Standards (NOS)

#### Compulsory NOS:

1. [ASC/N9810: Manage work and resources \(Manufacturing\)](#)
2. [ASC/N9812: Interact effectively with team, customers and others](#)
3. [ASC/N4106: Manage shop floor Tool room operations and team](#)
4. [ASC/N4105: Supervise various operations related to tool and die manufacturing](#)

### Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Tool Room Operation
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3115.1302

<b>Minimum Educational Qualification &amp; Experience</b>	<p>10th Class + I.T.I (Fitter/Turner/Machinist) with 2 Years of relevant experience</p> <p>OR</p> <p>12th Class with 4 years relevant experience</p> <p>OR</p> <p>3 years Diploma (Mechanical/Automobile) from a recognized body (after class 12th)</p> <p>OR</p> <p>Certificate-NSQF (Automotive Tool Room Technician Level 4) with 2 Years of relevant experience</p>
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	20 Years
<b>Last Reviewed On</b>	30/09/2021
<b>Next Review Date</b>	30/09/2024
<b>NSQC Approval Date</b>	30/09/2021
<b>Version</b>	2.0

## ASC/N9810: Manage work and resources (Manufacturing)

### Description

This NOS unit is about implementing safety, planning work, adopting sustainable practices for optimising the use of resources.

### Scope

The scope covers the following :

- Maintain safe and secure working environment
- Maintain Health and Hygiene
- Effective waste management practices
- Material/energy conservation practices

### Elements and Performance Criteria

#### *Maintain safe and secure working environment*

To be competent, the user/individual on the job must be able to:

- PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace
- PC2. implement safe working practices for dealing with hazards to ensure safety of self and others
- PC3. conduct regular checks of the machines with support of the maintenance team to identify potential hazards
- PC4. ensure that all the tools/equipment/fasteners/spare parts are arranged as per specifications/utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/work instructions
- PC5. organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices
- PC6. fill daily check sheet to report improvements done and risks identified
- PC7. ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others
- PC8. report any identified breaches in health, safety and security policies and procedures to the designated person

#### *Maintain Health and Hygiene*

To be competent, the user/individual on the job must be able to:

- PC9. ensure workplace, equipment, restrooms etc. are sanitized regularly
- PC10. ensure team is aware about hygiene and sanitation regulations and following them on the shop floor
- PC11. ensure availability of running water, hand wash and alcohol-based sanitizers at the workplace
- PC12. report advanced hygiene and sanitation issues to appropriate authority
- PC13. follow stress and anxiety management techniques and support employees to cope with stress, anxiety etc
- PC14. wear and dispose PPEs regularly and appropriately

#### *Effective waste management practices*

To be competent, the user/individual on the job must be able to:

PC15. ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP

PC16. ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste

#### *Material/energy conservation practices*

To be competent, the user/individual on the job must be able to:

PC17. ensure malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment are resolved effectively

PC18. prepare and analyze material and energy audit reports to decipher excessive consumption of material and water

PC19. identify possibilities of using renewable energy and environment friendly fuels

PC20. identify processes where material and energy/electricity utilization can be optimized

### **Knowledge and Understanding (KU)**

The individual on the job needs to know and understand:

KU1. organisation procedures for health, safety and security, individual role and responsibilities in this context

KU2. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU3. evacuation procedures for workers and visitors

KU4. how and when to report hazards as well as the limits of responsibility for dealing with hazards

KU5. potential hazards, risks and threats based on the nature of work

KU6. various types of fire extinguisher

KU7. various types of safety signs and their meaning

KU8. appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.

KU9. relevant standards, procedures and policies related to 5S followed in the company

KU10. the various materials used and their storage norms

KU11. importance of efficient utilisation of material and water

KU12. basics of electricity and prevalent energy efficient devices

KU13. common practices of conserving electricity

KU14. common sources and ways to minimize pollution

KU15. categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics

KU16. waste management techniques

KU17. significance of greening

### **Generic Skills (GS)**

User/individual on the job needs to know how to:

- GS1. read safety instructions/guidelines
- GS2. modify work practices to improve them
- GS3. work with supervisors/team members to carry out work related tasks
- GS4. complete tasks efficiently and accurately within stipulated time
- GS5. inform/report to concerned person in case of any problem
- GS6. make timely decisions for efficient utilization of resources
- GS7. write reports such as accident report, in at least English/regional language

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	20	13	-	8
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	4	2	-	2
PC2. implement safe working practices for dealing with hazards to ensure safety of self and others	3	1	-	2
PC3. conduct regular checks of the machines with support of the maintenance team to identify potential hazards	2	2	-	1
PC4. ensure that all the tools/equipment/fasteners/spare parts are arranged as per specifications/utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/work instructions	3	2	-	1
PC5. organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices	2	-	-	-
PC6. fill daily check sheet to report improvements done and risks identified	2	2	-	-
PC7. ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others	2	2	-	1
PC8. report any identified breaches in health, safety and security policies and procedures to the designated person	2	2	-	1
<i>Maintain Health and Hygiene</i>	13	7	-	5
PC9. ensure workplace, equipment, restrooms etc. are sanitized regularly	3	2	-	1
PC10. ensure team is aware about hygiene and sanitation regulations and following them on the shop floor	2	1	-	-
PC11. ensure availability of running water, hand wash and alcohol-based sanitizers at the workplace	2	2	-	1
PC12. report advanced hygiene and sanitation issues to appropriate authority	1	1	-	1



Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. follow stress and anxiety management techniques and support employees to cope with stress, anxiety etc	2	1	-	1
PC14. wear and dispose PPEs regularly and appropriately	3	-	-	1
<i>Effective waste management practices</i>	<b>6</b>	<b>4</b>	-	<b>1</b>
PC15. ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP	3	2	-	-
PC16. ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste	3	2	-	1
<i>Material/energy conservation practices</i>	<b>11</b>	<b>6</b>	-	<b>6</b>
PC17. ensure malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment are resolved effectively	2	2	-	1
PC18. prepare and analyze material and energy audit reports to decipher excessive consumption of material and water	3	2	-	1
PC19. identify possibilities of using renewable energy and environment friendly fuels	3	1	-	2
PC20. identify processes where material and energy/electricity utilization can be optimized	3	1	-	2
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9810
<b>NOS Name</b>	Manage work and resources (Manufacturing)
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed On</b>	30/09/2021
<b>Next Review Date</b>	30/09/2024
<b>NSQC Approval Date</b>	30/09/2021

## ASC/N9812: Interact effectively with team, customers and others

### Description

This unit is about communicating with team members, superior and others.

### Scope

The scope covers the following :

- Communicate effectively with team members
- Interact with superiors
- Respect gender and ability differences

### Elements and Performance Criteria

#### *Communicate effectively with team members*

To be competent, the user/individual on the job must be able to:

- PC1. implement ways to share information with team members in line with organisational requirements
- PC2. ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written
- PC3. manage and co-ordinate with team members to integrate work as per requirements
- PC4. work in a way that show respect for all team members and customers
- PC5. carry out commitments made to team members and let them know in good time if there is any discrepancy with reasons
- PC6. resolve conflicts within the team members at work to achieve smooth workflow
- PC7. guide the team members to follow the organisation's policies and procedures
- PC8. ensure team goals are given preference over individual goals
- PC9. respect personal space of colleagues and customers

#### *Interact with superiors*

To be competent, the user/individual on the job must be able to:

- PC10. report progress on job allocated and team performance to the superiors
- PC11. escalate problems to superiors that cannot be handled
- PC12. train the team members to report completed work and receive feedback on work done
- PC13. encourage team members to rectify errors as per feedback and minimize mistakes in future

#### *Respect gender and ability differences*

To be competent, the user/individual on the job must be able to:

- PC14. ensure team shows sensitivity towards all genders and PwD
- PC15. adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability
- PC16. help PwD team members to overcome the challenges, if asked

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. the importance of effective communication and establishing good working relationships with team members and superiors
- KU2. different methods of communication as per the circumstances
- KU3. gender based concepts, issues and legislation
- KU4. organisation standards and guidelines to be followed for PwD
- KU5. rights and duties at workplace with respect to PwD
- KU6. organisation policies and procedures pertaining to written and verbal communication

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read safety instructions/guidelines
- GS2. modify work practices to improve them
- GS3. work with supervisors/team members to carry out work related tasks
- GS4. complete tasks efficiently and accurately within stipulated time
- GS5. make timely decisions for efficient utilization of resources
- GS6. read instructions/guidelines/procedures
- GS7. write in English/any one language

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with team members</i>	20	14	-	8
PC1. implement ways to share information with team members in line with organisational requirements	2	2	-	-
PC2. ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written	2	2	-	2
PC3. manage and co-ordinate with team members to integrate work as per requirements	2	1	-	2
PC4. work in a way that show respect for all team members and customers	3	1	-	2
PC5. carry out commitments made to team members and let them know in good time if there is any discrepancy with reasons	2	2	-	-
PC6. resolve conflicts within the team members at work to achieve smooth workflow	3	2	-	-
PC7. guide the team members to follow the organisation's policies and procedures	2	1	-	-
PC8. ensure team goals are given preference over individual goals	2	1	-	-
PC9. respect personal space of colleagues and customers	2	2	-	2
<i>Interact with superiors</i>	18	10	-	7
PC10. report progress on job allocated and team performance to the superiors	4	3	-	2
PC11. escalate problems to superiors that cannot be handled	4	2	-	1
PC12. train the team members to report completed work and receive feedback on work done	5	2	-	2
PC13. encourage team members to rectify errors as per feedback and minimize mistakes in future	5	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Respect gender and ability differences</i>	12	6	-	5
PC14. ensure team shows sensitivity towards all genders and PwD	4	2	-	2
PC15. adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability	4	2	-	2
PC16. help PwD team members to overcome the challenges, if asked	4	2	-	1
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9812
<b>NOS Name</b>	Interact effectively with team, customers and others
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed On</b>	30/09/2021
<b>Next Review Date</b>	30/09/2024
<b>NSQC Approval Date</b>	30/09/2021

## ASC/N4106: Manage shop floor Tool room operations and team

### Description

This NOS is about managing manpower and availability of material on shop floor for a shift/line. It is also about supervising production operations and implementing process and team improvement practices for achieving the targets.

### Scope

The scope covers the following :

- Manage manpower and material for the shift/line
- Supervise Production Operations
- Implement process improvement techniques
- Implement team improvement practices

### Elements and Performance Criteria

#### *Manage manpower and material for the shift/line*

To be competent, the user/individual on the job must be able to:

- PC1. allocate requisite manpower based on skill matrix to achieve production targets
- PC2. support Shift In Charge/Process head/Shop head in finalizing the shift rosters for the week and month based on the production plan
- PC3. maintain the information on leaves/in-out time and shift/line overtime of the team and share the information with the concerned authorities as per the organisational procedures
- PC4. send inventory requirements to stores and purchase department and follow up with them to ensure the timely receipt of materials (Spares, Consumables, etc.)
- PC5. maintain the movement of material and work pieces on the shop floor according to the TAKT time prescribed in the SOP/Work Plans
- PC6. ensure that the operators and helpers have the required tools and equipment at the start of production process
- PC7. ensure optimal resource utilization (man, machine and material) and streamlining of activities within the shift

#### *Supervise Production Operations*

To be competent, the user/individual on the job must be able to:

- PC8. co-ordinate with other departments like stores, paint shop, assembly line, quality, safety, production planning etc. regarding resolution of inter-related problems and achieving required production target and quality standards
- PC9. implement corrective actions to reduce losses and wastages during shift operation and minimum rejection of components
- PC10. prepare daily and monthly production MIS reports to analyse the actual performance with the production target and report the same to production incharge
- PC11. verify the production and material movement related data entries in the system (manual/ERP) for the line/shift and ensure correctness of the data
- PC12. support the maintenance team in finalizing and executing the preventive maintenance schedule for the shop/line



PC13. support the incharge/Engineer/Shop Head in analysing the various data sheets and reports related to production, maintenance, manpower deployment etc.

*Implement process improvement techniques*

To be competent, the user/individual on the job must be able to:

PC14. analyse possible areas of improvements in production line and identify corrective measures to address the gaps

PC15. carry out audit of production process for capability of each operation and prepare reports on the non-compliances for the regulatory authorities by following organizational procedures

PC16. implement various process improvement techniques like Kaizen, 5S, Poka Yoke, TQM etc. on the production line to rectify the failure and gaps in the production process

PC17. analyse machine breakdown trends and current maintenance process to identify areas of improvement and corrective actions for improving the same

PC18. monitor and review the effectiveness of process improvement techniques and corrective actions on production and prepare reports for the regulatory authorities on the same

*Implement team improvement practices*

To be competent, the user/individual on the job must be able to:

PC19. encourage team members/operators to suggest quality improvement measures through suggestion schemes, evaluate feasibility of the ideas and discuss their implementation with seniors

PC20. conduct daily floor meeting/morning meetings/staff meetings to communicate the information such as production targets, new guidelines, new processes etc. to team

PC21. organise training sessions for the operators and technicians to improve their skills and knowledge on new techniques and methods

PC22. resolve grievances within the team or escalate them to the concerned authorities if they are beyond the scope

PC23. counsel employees for any work related issues or any personal problems highlighted by the employee

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant manufacturing, quality and maintenance standards and procedures followed in the organisation

KU2. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution

KU3. requirement of raw materials, tools and equipment on the shift/line

KU4. how to prepare shift roster and maintain performance information of the team

KU5. use of ERP system for maintaining and updating production line data

KU6. documents and reports related to production process

KU7. various process improvement techniques like Kaizen, 5S, Poka Yoke, TQM etc

KU8. how to audit gaps and issues in production process and their analysis

KU9. various employee engagement and development practices

KU10. how to handle and solve employee grievances

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read and interpret work instructions, reports and process documents
- GS2. communicate the production requirements and issues to the seniors and other departments
- GS3. attentively listen and comprehend the information given by the master technician/team members
- GS4. write reports related to production process in English/regional language
- GS5. recognise a workplace problem and take suitable action
- GS6. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS7. plan and organise work according to the work requirements
- GS8. report to the supervisor or deal with a colleague individually, depending on the type of concern
- GS9. complete the assigned tasks with minimum supervision
- GS10. explore new approach of doing things to resolve issues
- GS11. suggest improvements (if any) in current ways of working

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage manpower and material for the shift/line</i>	9	17	-	6
PC1. allocate requisite manpower based on skill matrix to achieve production targets	2	3	-	1
PC2. support Shift In Charge/Process head/Shop head in finalizing the shift rosters for the week and month based on the production plan	1	3	-	1
PC3. maintain the information on leaves/in-out time and shift/line overtime of the team and share the information with the concerned authorities as per the organisational procedures	2	3	-	1
PC4. send inventory requirements to stores and purchase department and follow up with them to ensure the timely receipt of materials (Spares, Consumables, etc.)	1	2	-	1
PC5. maintain the movement of material and work pieces on the shop floor according to the TAKT time prescribed in the SOP/Work Plans	1	2	-	1
PC6. ensure that the operators and helpers have the required tools and equipment at the start of production process	1	2	-	-
PC7. ensure optimal resource utilization (man, machine and material) and streamlining of activities within the shift	1	2	-	1
<i>Supervise Production Operations</i>	8	11	-	5
PC8. co-ordinate with other departments like stores, paint shop, assembly line, quality, safety, production planning etc. regarding resolution of inter-related problems and achieving required production target and quality standards	1	1	-	1
PC9. implement corrective actions to reduce losses and wastages during shift operation and minimum rejection of components	2	3	-	1
PC10. prepare daily and monthly production MIS reports to analyse the actual performance with the production target and report the same to production incharge	1	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. verify the production and material movement related data entries in the system (manual/ERP) for the line/shift and ensure correctness of the data	1	2	-	1
PC12. support the maintenance team in finalizing and executing the preventive maintenance schedule for the shop/line	1	1	-	-
PC13. support the incharge/Engineer/Shop Head in analysing the various data sheets and reports related to production, maintenance, manpower deployment etc.	2	1	-	1
<i>Implement process improvement techniques</i>	<b>8</b>	<b>12</b>	-	<b>7</b>
PC14. analyse possible areas of improvements in production line and identify corrective measures to address the gaps	2	1	-	1
PC15. carry out audit of production process for capability of each operation and prepare reports on the non-compliances for the regulatory authorities by following organizational procedures	1	2	-	1
PC16. implement various process improvement techniques like Kaizen, 5S, Poka Yoke, TQM etc. on the production line to rectify the failure and gaps in the production process	2	5	-	2
PC17. analyse machine breakdown trends and current maintenance process to identify areas of improvement and corrective actions for improving the same	2	2	-	1
PC18. monitor and review the effectiveness of process improvement techniques and corrective actions on production and prepare reports for the regulatory authorities on the same	1	2	-	2
<i>Implement team improvement practices</i>	<b>5</b>	<b>10</b>	-	<b>2</b>
PC19. encourage team members/operators to suggest quality improvement measures through suggestion schemes, evaluate feasibility of the ideas and discuss their implementation with seniors	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20. conduct daily floor meeting/morning meetings/staff meetings to communicate the information such as production targets, new guidelines, new processes etc. to team	1	2	-	1
PC21. organise training sessions for the operators and technicians to improve their skills and knowledge on new techniques and methods	1	2	-	-
PC22. resolve grievances within the team or escalate them to the concerned authorities if they are beyond the scope	1	2	-	1
PC23. counsel employees for any work related issues or any personal problems highlighted by the employee	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>

## National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N4106
<b>NOS Name</b>	Manage shop floor Tool room operations and team
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Tool Room Operation
<b>NSQF Level</b>	5
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed On</b>	30/09/2021
<b>Next Review Date</b>	30/09/2024
<b>NSQC Approval Date</b>	30/09/2021

## ASC/N4105: Supervise various operations related to tool and die manufacturing

### Description

This NOS is about supervising end to end operations to ensure tools/ jigs/ fixtures manufacturing and assembly as per the quality and production norms set by the organization

### Scope

The scope covers the following :

- Prepare for the tool and die manufacturing operations
- Monitor the machining process across the line/ shift
- Monitor the assembly process across the line/ shift
- Manage post-production activities

### Elements and Performance Criteria

#### *Prepare for the tool and die manufacturing operations*

To be competent, the user/individual on the job must be able to:

- PC1. identify the work to be done by interpreting the engineering drawings/work order/SOPs and take inputs from the master technician regarding production planning
- PC2. prepare plan and schedule to meet the production target and give instructions to the tool room technicians about the processes required to be performed for achieving the same
- PC3. select the appropriate assembling and machining operations on the basis of drawing/ work order information
- PC4. ensure that all the tools, measuring instruments, equipment, and machines required for the job are in stock, functioning properly and are available on the shop floor
- PC5. ensure that input materials are as per the control plan/check sheet and meet required quality standards
- PC6. ensure that technicians are using calibrated and cleaned tools, measuring instruments and equipment
- PC7. check that machining and assembly apparatus is set properly as per the job requirements and SOP
- PC8. guide the technicians in the setting of the machining and assembly parameters as per the work instructions

#### *Monitor the machining process across the line/ shift*

To be competent, the user/individual on the job must be able to:

- PC9. ensure that the technician selects the right program for operating the CNC machine
- PC10. start the machine, produce the first component and inspect it for conformance to required specifications by using precision gauges
- PC11. check the output for quality, fill run chart and correct the tool setting to meet the required quality output

- PC12. supervise the machining operations and ensure that technicians are operating CNC machines properly to achieve the prescribed shape and dimension as mentioned in the Work Instructions/Control Plan
- PC13. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction
- PC14. monitor the process parameters on regular basis and ensure compliance to agreed standards (e.g. ambient air quality, stack monitoring, water quality monitoring etc.)
- PC15. record the data related to the loss time in case of machine stops and the breakdown and report the same to the supervisors and maintenance team

*Monitor the assembly process across the line/ shift*

To be competent, the user/individual on the job must be able to:

- PC16. supervise the assembly operations and ensure that technicians are assembling all the required parts using mechanical, pneumatic, hydraulic and electrical controlled assembly tools
- PC17. monitor that technicians are using specified types of screws, nuts, clamps, rivets for fitting the required components per the process laid out in the process manual/ Work Instructions
- PC18. ensure that extra material on the tool and die is cleaned properly by technicians
- PC19. guide the technicians during finishing operations such as filing, shimming, grinding and polishing on flat and contoured surface of assembled tools and dies
- PC20. follow the TAKT time prescribed by the process excellence team for every assembly station
- PC21. ensure that machining operators and technicians are following the do's and don'ts of the manufacturing process as defined in SOPs/Work Instructions
- PC22. take appropriate action in case of any irregularities e.g. power failure, rejection, tool breakage etc.

*Manage post-production activities*

To be competent, the user/individual on the job must be able to:

- PC23. conduct random sampling and quality checks on the incoming and finished products and report the same to the relevant authorities or take action for its improvement
- PC24. support the technicians in performing spot press operation and nitriding operation on the tool and dies as per SOP/WI
- PC25. ensure test runs are conducted as specified in the Work Instructions/ SOP manuals on assembled tools to ensure conformance to the standards
- PC26. support the team in conducting test trials of the tool and do the changes in the tool/ die in case of any deviations/ required changes
- PC27. ensure that the technicians are segregating and storing the completed pieces properly and are as per the specified standards
- PC28. support the technicians in minor machine maintenance activities such as oiling or cleaning of machine and its components as per the checklist
- PC29. prepare and maintain records related to manufacturing and maintenance activities conducted

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant standards and procedures followed in the company



- KU2. basic process followed for tool and die manufacturing
- KU3. how to read engineering drawings, sketches, work orders
- KU4. Geometric Dimension and Tolerance limits
- KU5. various types of machining processes such as drilling, boring, turning etc
- KU6. various assembly operations and methods like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping etc.
- KU7. the impact of various machining parameters on the final product
- KU8. SOP recommended by the organisation for operating CNC and conventional machine
- KU9. SOP recommended by the manufacturer for using tools and machines like grinders, lather machines, CNC operator wire cut and EDM
- KU10. machines and tools like Bolting guns, rivet guns, nuts, bolts, screwdrivers, wrenches, hacksaws, hammers etc. required during tool and die manufacturing operations
- KU11. impact of various assembly process like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping on the
- KU12. how to use measurement instruments like rulers, Vernier calipers, micrometer, weighing scale, gauges and other inspection equipment
- KU13. post-production processes like inspection, cleaning, maintenance etc.
- KU14. various type of defects in final products
- KU15. how to check defects in the completed products

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read and interpret drawings, work instructions, equipment manuals and process documents
- GS2. communicate the process requirements to the supervisor and co-workers
- GS3. attentively listen and comprehend the information given by the supervisor/team members
- GS4. write work related information in English/regional language
- GS5. recognise a workplace problem and take suitable action
- GS6. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS7. plan and organise work according to the work requirements
- GS8. complete the assigned tasks with minimum supervision
- GS9. report to the supervisor or deal with a colleague individually, depending on the type of concern
- GS10. suggest improvements (if any) in current ways of working

## Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for the tool and die manufacturing operations</i>	9	14	-	7
PC1. identify the work to be done by interpreting the engineering drawings/work order/SOPs and take inputs from the master technician regarding production planning	2	-	-	1
PC2. prepare plan and schedule to meet the production target and give instructions to the tool room technicians about the processes required to be performed for achieving the same	1	2	-	1
PC3. select the appropriate assembling and machining operations on the basis of drawing/ work order information	1	2	-	1
PC4. ensure that all the tools, measuring instruments, equipment, and machines required for the job are in stock, functioning properly and are available on the shop floor	1	2	-	1
PC5. ensure that input materials are as per the control plan/check sheet and meet required quality standards	1	2	-	-
PC6. ensure that technicians are using calibrated and cleaned tools, measuring instruments and equipment	1	2	-	1
PC7. check that machining and assembly apparatus is set properly as per the job requirements and SOP	1	2	-	1
PC8. guide the technicians in the setting of the machining and assembly parameters as per the work instructions	1	2	-	1
<i>Monitor the machining process across the line/ shift</i>	7	14	-	7
PC9. ensure that the technician selects the right program for operating the CNC machine	1	2	-	1
PC10. start the machine, produce the first component and inspect it for conformance to required specifications by using precision gauges	1	2	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. check the output for quality, fill run chart and correct the tool setting to meet the required quality output	1	2	-	1
PC12. supervise the machining operations and ensure that technicians are operating CNC machines properly to achieve the prescribed shape and dimension as mentioned in the Work Instructions/Control Plan	1	2	-	1
PC13. observe the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	1
PC14. monitor the process parameters on regular basis and ensure compliance to agreed standards (e.g. ambient air quality, stack monitoring, water quality monitoring etc.)	1	2	-	1
PC15. record the data related to the loss time in case of machine stops and the breakdown and report the same to the supervisors and maintenance team	1	2	-	-
<i>Monitor the assembly process across the line/ shift</i>	<b>7</b>	<b>13</b>	-	<b>6</b>
PC16. supervise the assembly operations and ensure that technicians are assembling all the required parts using mechanical, pneumatic, hydraulic and electrical controlled assembly tools	1	2	-	1
PC17. monitor that technicians are using specified types of screws, nuts, clamps, rivets for fitting the required components per the process laid out in the process manual/ Work Instructions	1	2	-	1
PC18. ensure that extra material on the tool and die is cleaned properly by technicians	1	2	-	-
PC19. guide the technicians during finishing operations such as filing, shimming, grinding and polishing on flat and contoured surface of assembled tools and dies	1	2	-	1
PC20. follow the TAKT time prescribed by the process excellence team for every assembly station	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. ensure that machining operators and technicians are following the do's and don'ts of the manufacturing process as defined in SOPs/Work Instructions	1	2	-	1
PC22. take appropriate action in case of any irregularities e.g. power failure, rejection, tool breakage etc.	1	1	-	1
<i>Manage post-production activities</i>	<b>7</b>	<b>9</b>	-	-
PC23. conduct random sampling and quality checks on the incoming and finished products and report the same to the relevant authorities or take action for its improvement	1	2	-	-
PC24. support the technicians in performing spot press operation and nitriding operation on the tool and dies as per SOP/WI	1	1	-	-
PC25. ensure test runs are conducted as specified in the Work Instructions/ SOP manuals on assembled tools to ensure conformance to the standards	1	-	-	-
PC26. support the team in conducting test trials of the tool and do the changes in the tool/ die in case of any deviations/ required changes	1	-	-	-
PC27. ensure that the technicians are segregating and storing the completed pieces properly and are as per the specified standards	1	2	-	-
PC28. support the technicians in minor machine maintenance activities such as oiling or cleaning of machine and its components as per the checklist	1	-	-	-
PC29. prepare and maintain records related to manufacturing and maintenance activities conducted	1	4	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## National Occupational Standards (NOS) Parameters

NOS Code	ASC/N4105
NOS Name	Supervise various operations related to tool and die manufacturing
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Tool Room Operation
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed On	30/09/2021
Next Review Date	30/09/2024
NSQC Approval Date	30/09/2021

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on the knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for the theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

**Minimum Aggregate Passing % at QP Level : 70**

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N9810.Manage work and resources (Manufacturing)	50	30	-	20	100	15
ASC/N9812.Interact effectively with team, customers and others	50	30	-	20	100	10
ASC/N4106.Manage shop floor Tool room operations and team	30	50	-	20	100	25
ASC/N4105.Supervise various operations related to tool and die manufacturing	30	50	-	20	100	50
<b>Total</b>	<b>160</b>	<b>160</b>	<b>-</b>	<b>80</b>	<b>400</b>	<b>100</b>

## Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
CFT	Complement Fixation Test
ERP	Enterprise Resource Planning
TQM	Total Quality Management

## Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.



<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.